

WHAT IS CLAIMED IS:

1. A diverting filter for implantation in the bifurcation of the human common carotid artery (CCA) with the external carotid artery (ECA) and the internal carotid artery (ICA), comprising:

a tubular body expandable from an initial small-diameter state for manipulation through the CCA to an expanded larger-diameter state for implantation in said bifurcation;

said tubular body including a proximal region for implantation in the CCA, a distal region for implantation in the ECA, and a middle filtering region for alignment with the orifice of the ICA for diverting relatively-large emboli in the CCA blood flow to the ECA while minimizing interference to blood flow through both the ICA and the ECA;

said tubular body being constituted of between 48 and 56 braided filaments each having an outer diameter of 48-52 μm and braided into a tubular body exhibiting an average porosity index of at least 80% when in said expanded state.

2. The diverting filter according to Claim 1, wherein said average porosity index is 80 – 83%.

3. The diverting filter according to Claim 1, wherein said tubular body is constituted of one of 48 and 56 of said braided filaments.

4. The diverting filter according to Claim 1, wherein said average porosity index in said middle region is defined by windows having an inscribed diameter of 400 – 500 μ m.
5. The diverting filter according to Claim 1, wherein said average porosity index in said middle region is defined by windows having an inscribed diameter of 450 – 500 μ m.
6. The diverting filter according to Claim 1, wherein said tubular body further exhibits an at rest state wherein said tubular body exhibits a diameter greater than said expanded larger-diameter state, and

wherein in said at rest state of the tubular body said distal region has an outer diameter gradually decreasing from said middle filtering region and terminating in an outwardly flared distal end, and

said proximal region has an outer diameter gradually increasing from said middle filtering region and terminating in an outwardly flared proximal end.
7. The diverting filter according to Claim 6, wherein the outer diameter of the outwardly flared distal end is increased by more than 0.4 mm in respect to said distal region in said at rest state.
8. The diverting filter according to Claim 6, wherein the outer diameter of the outwardly flared proximal end is increased by more than 0.2 mm in respect to said proximal region in said at rest state.
9. The diverting filter according to Claim 6, wherein, in said at rest state of the tubular body, the outer diameter of said distal region is 7.3-7.7 mm.

10. The diverting filter according to Claim 6, wherein, in said at rest state of the tubular body, the outer diameter of an end of said distal region is 7.8 – 8.6 mm.

11. The diverting filter according to Claim 6, wherein, in said at rest state of the tubular body, the outer diameter of said proximal region is 7.7-8.1 mm.

12. The diverting filter according to Claim 6, wherein, in said at rest state of the tubular body, the outer diameter of an end of said proximal region is 8.1 - 8.5 mm.

13. The diverting filter according to Claim 6, wherein in said at rest state the outer diameter of the outwardly flared distal end is increased by more than 0.4 mm, and the outer diameter of the outwardly flared proximal end is increased by more than 0.2 mm.

14. The diverting filter according to Claim 6, wherein the length of said tubular body in said at rest state is 30 – 34 mm.

15. A diverting filter for implantation in the bifurcation of the human common carotid artery (CCA) with the external carotid artery (ECA) and the internal carotid artery (ICA), comprising:

a tubular body expandable from an initial small-diameter state for manipulation through the CCA to an expanded larger-diameter state for implantation in said bifurcation;

said tubular body including a proximal region for implantation in the CCA, a distal region for implantation in the ECA, and a middle filtering region for alignment with the orifice of the ICA for diverting

relatively-large emboli in the CCA blood flow to the ECA while minimizing interference to blood flow through both the ICA and the ECA;

said tubular body being constituted of a plurality of braided filaments each having an outer diameter of 48-52 μm and braided into a tubular body exhibiting an average implanted braid angle of $70^\circ - 110^\circ$ in said middle filtering region and an average porosity index of at least 80% when in said expanded state.

16. The diverting filter according to Claim 15, having an average implanted braid angle of $70^\circ - 105^\circ$ in said middle filtering region when in said expanded state.

17. The diverting filter according to Claim 15, having an average implanted braid angle of $80^\circ - 100^\circ$ in said middle filtering region when in said expanded state.

18. The diverting filter according to Claim 15, wherein said plurality of braided filaments is between 48 and 56 braided filaments.

19. The diverting filter according to Claim 15, wherein said plurality of braided filaments is one of 48 and 56 braided filaments.

20. A diverting filter for implantation in the bifurcation of the human common carotid artery (CCA) with the external carotid artery (ECA) and the internal carotid artery (ICA), comprising:

a tubular body expandable from an initial small-diameter state for manipulation through the CCA to an expanded larger-diameter state for implantation in said bifurcation, said tubular body having an at rest state

wherein said tubular body exhibits a diameter greater than said expanded larger-diameter state;

said tubular body including a proximal region for implantation in the CCA, a distal region for implantation in the ECA, and a middle filtering region for alignment with the orifice of the ICA for diverting relatively-large emboli in the CCA blood flow to the ECA while minimizing interference to blood flow through both the ICA and the ECA;

said tubular body being constituted of a plurality of braided filaments braided into a tubular body exhibiting an inscribed diameter of 400 – 500 μ m in said middle filtering region and an average porosity index of at least 80% when in said expanded state.

21. The diverting filter according to Claim 20, having an inscribed diameter of 450 – 500 μ in said middle filtering region when in said expanded state.
22. The diverting filter according to Claim 20, wherein said middle filtering region exhibits an average implanted braid angle of 75° - 105° in said middle filtering region when in said expanded state.
23. The diverting filter according to Claim 20, wherein said plurality of braided filaments is between 48 and 56 braided filaments.
24. The diverting filter according to Claim 20, wherein said plurality of braided filaments constitute filaments each having an outer diameter of between 48-52 μ m.

25. The diverting filter according to Claim 23, wherein said plurality of braided filaments constitute filaments each having an outer diameter of between 48-52 μm .